AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. *(cancelled)*

2. *(cancelled)*

3. *(cancelled)*

4. *(previously presented)* In a system of a plurality of nodes communicating with each other on a serial data path using dominant and recessive signal levels, where a dominant signal level sent on the data path by any of the nodes creates a dominant signal level on the data path irrespective of the number of recessive signal levels sent by other nodes, and wherein the dominant and recessive signal levels form a series of bits organized into messages, wherein each sending node senses the signal level on the data path bit by bit, and if different from that sent by that sending node, provides a collision signal and halts further sending of signal levels by that sending node, wherein each sending node while sending a message identifies the end thereof, and wherein each node includes i) a send register for recording a message in bit format ordered from leading to trailing bits for sending on the data path and for providing a message signal encoding the message bit format, and ii) a message sending module receiving the message signal and modulating the signal levels on the data path to create dominant and recessive signal levels encoding the message bit format in order from leading to trailing bits thereof, wherein the message sending module begins to send each message in preselected time relationship to the end of the previous message, and wherein each node of the system includes:

a) a priority value generator providing a priority signal encoding a value whose magnitude indicates a relative priority; and

b) a message priority module receiving the priority signal, and storing the priority value in the most significant bits of the send register; and;

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wherein each message priority module stores a priority value in which a dominant bit value in a bit position indicates a higher priority in that bit position; and

wherein each node while sending a message provides a lost arbitration signal responsive to the signal level on the data path differing from that currently sent by the sending node; wherein each node further includes

a) a send message queue having a plurality of memory locations each for storing a message and for storing a delay index value associated with that message;

b) an operating functions module forming messages and storing formed messages in memory locations of the send message queue; and

c) an incrementer incrementing the delay index value in each memory location holding an unsent message;

wherein the message priority module stores priority values for messages stored in the memory locations of the send message queue; and wherein the message priority module selects messages stored in the send message queue to be sent first on the basis of the priority value of the message and where the priority values of a plurality of messages are equal, on the value of the delay index in the memory locations holding the messages with equal priority values.

5. *(original)* The system of claim 4, wherein at least one node receives a sensor signal indicating a relatively high priority, and wherein the priority value generator in that node receives the sensor signal and responsive to the sensor signal, provides a priority signal encoding a value indicating a relatively high priority.

6. *(previously presented)* In a system of a plurality of nodes communicating with each other on a serial data path using dominant and recessive signal levels, where a dominant signal level sent on the data path by any of the nodes creates a dominant signal level on the data path irrespective of the number of recessive signal levels sent by other nodes, and wherein the dominant and recessive signal levels form a series of bits organized into messages, wherein each sending node senses the signal level on the data path bit by bit, and if different from that sent by that sending node, provides a collision signal and halts further

sending of signal levels by that sending node, wherein each sending node while sending a message identifies the end thereof, and wherein each node includes i) a send register for recording a message in bit format ordered from leading to trailing bits for sending on the data path and for providing a message signal encoding the message bit format, and ii) a message sending module receiving the message signal and modulating the signal levels on the data path to create dominant and recessive signal levels encoding the message bit format in order from leading to trailing bits thereof, wherein the message sending module begins to send each message in preselected time relationship to the end of the previous message, and wherein each node of the system includes:

a) a priority value generator providing a priority signal encoding a value whose magnitude indicates a relative priority; and

b) a message priority module receiving the priority signal, and storing the priority value in the most significant bits of the send register; and;

wherein each message priority module stores a priority value in which a dominant bit value in a bit position indicates a higher priority in that bit position; and

wherein at least one node receives a sensor signal indicating a relatively high priority, and wherein the priority value generator in that node receives the sensor signal and responsive to the sensor signal, provides a priority signal encoding a value indicating a relatively high priority.

7. *(cancelled)* .

8. *(cancelled)*

9. *(cancelled)*

10. *(currently amended)* ~~The method of claim 8, further comprising, for the at least one node,~~
____ A method for communicating between a plurality of nodes coupled to a serial data path, comprising:

communicating between the nodes on the serial data path using dominant and recessive signal levels that form a series of bits organized into messages, wherein a dominant signal level sent on the data path by any of the nodes creates a dominant signal level on the data path irrespective of the number of recessive signal levels sent by other nodes;

for each sending node of the plurality of nodes, sensing the signal level on the data path bit by bit, and if different from that sent by that sending node, halting further sending of signal levels by that sending node; and

for at least one node of the plurality of nodes,

generating a message that includes a data identifier field indicating both a content and an inherent priority of the message;

generating a high-level priority value indicating a relative message priority that is independent of the inherent priority;

inserting the high-level priority value in a predetermined location of the message;

modulating the signal levels on the serial data path to create dominant and recessive signal levels that encode the message in order from leading to trailing bits;

storing a plurality of messages waiting to be sent via the serial data path;

associating a delay index with each message of the plurality of messages;

incrementing the delay index associated with each message when the associated message is not sent due to a lost arbitration on the serial data path;

ordering messages to be sent based the high-level priority value of the message; and

where the high-level priority values of a subset of the plurality of messages are equal, ordering messages to be sent based on the value of the delay index associated with each message of the subset.